

# Assessing cancer patients' quality of life and coping mechanisms in Radiotherapy Department of the University College Hospital, Ibadan

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## Abstract

**Background:** Cancer is often associated with a lot of pain and suffering. These suggest that coping with the symptoms, diagnosis and treatment of cancer is a major life stressor that is capable of influencing patients' quality of life (QoL).

**Purpose:** The purpose of the study is to assess the relationship between cancer patients' QoL dimensions and coping strategies in the Radiotherapy Department of the University College Hospital Ibadan, Nigeria.

**Methods:** Data were collected on clinic days from all available and consenting cancer patients who were receiving treatment at the radiotherapy department. Participants were informed of their right to decline to fill the questionnaires.

**Result:** In this study, 237 cancer patients participated. They had an age range of 15 to 95 years with a mean age of 49.91 years. There was significant inverse relationship between physical well-being with behavioural disengagement, venting, planning and self-blame ( $p < 0.05$ ); social/family well-being has significant linear relationship with active coping, emotional support, positive reframing, instrumental support, acceptance and religion ( $p < 0.05$ ); emotional well-being has significant inverse relationship with behavioural disengagement and self-blame ( $p < 0.05$ ); functional well-being has significant linear relationship with active coping, instrumental support and acceptance ( $p < 0.05$ ).

**Conclusion:** It is important to assess cancer patients for the kind of coping strategies they are adopting to use in coping with their cancer burden, thereby guiding against lower QoL due to negative coping strategies. Intervention programmes could be developed to help cancer patients adopt more positive and effective coping strategies to improve patients' QoL.

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## Introduction

Cancer is often associated with terms such as burden, struggle and suffering. This suggests that coping with the symptoms, diagnosis and treatment of cancer is a major life stressor. An individual's response to cancer diagnosis and treatment depends on the nature of the stresses imposed by the disease itself and its treatment, as well as how the individual deals with stressful situations and the nature of the stresses [1]. An individual can choose from a range of both adaptive and maladaptive coping styles with which to deal with the stresses of a cancer diagnosis and its treatment. Whether a problem-centred or emotion-centred coping strategy will be adaptive cannot be determined without a careful examination of the individual context. Either strategy is potentially adaptive, as coping is strongly related to cognitive evaluation and the options for coping available in the particular context. Inability to cope effectively with the demands that cancer imposes, however, potentially affects an individual's health-related quality of life (HrQoL).

Increasing attention is being given to improving HrQoL even as the disease and symptoms are being controlled. HrQoL encompasses a broad spectrum of issues in cancer care. HrQoL refers to the extent to which one's usual or expected physical, functional, emotional and social well-being are affected by a medical condition or treatment [2]. The physical domain refers to disease, symptoms and treatment side effects. The functional domain primarily reflects one's capabilities, role limitations and self-care. The emotional domain includes emotional distress and positive emotional experiences. The social domain relates to intimacy, sexual and family relationships, as well as the extended friendship network and the amount of support and help that patients obtain from their social networks. Four measures of HrQoL evaluate the illness experience rather than the disease process. The illness experience includes the patient's perception of symptoms, the experience of being unable to function normally and the efforts made to cope and control the disease [3]. Little has been performed to assess for correlations between different coping

strategies and HrQoL among patients with cancer. To our knowledge, no work has heretofore assessed this correlation among patients in treatment for cancer in West Africa.

The purpose of this study was to explore whether there is an association between the four HrQoL domains (physical, functional, emotional and social) and the coping strategies of patients in treatment for cancer at University College Hospital, Ibadan, West Africa. The study had four main aims: (i) to describe participants' HrQoL; (ii) to identify the coping strategies used by participants; (iii) to ascertain whether there is any correlation between coping strategies used by participants and the four domains of HrQoL; and (iv) to determine the contribution of type of anticancer treatment to the variance of patients' scores on measures of HrQoL.

## Methods

This was a descriptive, cross-sectional study that explored associations between coping strategies and HrQoL and between treatment type and HrQoL among patients with cancer who were in treatment for cancer at the University College Hospital, Ibadan, Nigeria.

### Participants

Patients older than 18 years of age, who were aware of their illness and were without mental disorder or dementia, who could speak English or Yoruba and were in treatment for cancer at the Radiotherapy Clinic at UI/UCH, were approached by a clinic staff and asked to participate in this study. Patients were informed of their right to decline. Patients who agreed to participate signed informed consent forms. Data were collected on clinic days from all available and consenting patients who were receiving treatment at the radiotherapy clinic. Patients filled out two questionnaires: the Brief Coping, which assesses coping strategies [4] and the Functional Assessment of Cancer Therapy-General (FACT-G), which assesses HrQoL [5]. Both questionnaires were provided in English and Yoruba, depending on which language the patient spoke.

Ethical approval for this study was obtained from the UI/UCH Institutional Review Board from December 2011 to December 2012.

### Measures

#### Demographic and clinical questionnaire

Participants' age, sex, relationship/marital status, tribal affiliation, treatment type and primary site of cancer were collected.

#### Brief COPE

The Brief COPE scale [4] is a 28-item self-report measure of both adaptive and maladaptive coping styles. The scale was designed to yield 14 subscales, comprised of two items each. The Brief COPE uses a four-point Likert scale (*I haven't*

*been doing this at all to I've been doing this a lot*), querying a variety of different coping methods (e.g. praying or meditating, receiving emotional support from others, criticising oneself, etc.). Subscale coefficient alphas range from 0.50 to 0.90 [4].

#### FACT-G

The FACT-G is a 27-item compilation of general questions divided into four primary HrQoL domains of physical (PWB), social/family (SFWB), emotional (EWB) and functional (FWB) well-being developed by Cella *et al.* [5]. The PWB subsection focuses on energy, nausea, pain and other physical adverse effects of treatment and recovery (seven items; point range, 0–28). The SFWB subsection assesses relationships with friends and family and includes questions regarding the woman's satisfaction with her support system and her sex life (seven items; point range, 0–28). The EWB subsection asks questions regarding sadness, health outlook and mental health (six items; point range, 0–24). The FWB subsection assesses a woman's ability to perform work and her fulfilment with work and normal hobbies (seven items; point range, 0–28). Internal reliability of the four subscales was very good with Cronbach's  $\alpha$  ranging between 0.81 and 0.85 for PWB and FWB, respectively, and between 0.78 and 0.72 for the SFWB and EWB scales, respectively [5].

#### Analytical plan

The sample's demographic and clinical data and responses to Brief COPE and FACT-G were described using frequencies and percents and measures of central tendency and dispersion. Participants' responses to the FACT-G were categorised into favourable (PWB, SFWB, FWB = 0–10; EWB = 0–8; total FACT-G = 0–40), fairly favourable (PWB, SFWB, FWB = 11–20; EWB = 9–16; total FACT-G = 41–80) and unfavourable (PWB, SFWB, FWB = 21–28; EWB = 17–24; total FACT-G = 81–108). Pearson Product Moment Correlation was used to determine whether correlations existed between participants coping strategies as measured by the Brief COPE and the four domains of HrQoL as measured by the FACT-G. Measures of central tendency and dispersion were used to describe each HrQoL domain by type of anticancer treatment. Analysis of variance (ANOVA) was used to determine whether there was any difference (or variance) in participants' HrQoL based on type of anticancer treatment. All statistical analyses were completed using SPSS version 11.

## Results

### Demographic and clinical characteristics of the participants

Table 1 displays the demographic and clinical characteristics of the 237 participants. They had an age range

**Table 1.** Participants' demographic and clinical characteristics (*n* = 237)

Characteristic	<i>n</i> (%)	Mean (SD)
Demographic		
Sex		
Female	198 (84.1)	—
Male	39 (15.9)	—
Age	237	49.91(13.48)
Relationship/marital status		
Single	18 (7.3)	—
Cohabiting	3 (0.9)	—
Married	169 (72.1)	—
Separated	8 (3.0)	—
Widowed	39 (16.7)	—
Ethnic group		
Yoruba	78 (32.9)	—
Igbo	105 (44.4)	—
Hausas	15 (6.0)	—
Other	13 (5.5)	—
Clinical		
Primary site of cancer		
Prostate	13 (5.5)	—
Breast	61 (25.7)	—
Cervical	61 (25.7)	—
Other	53 (22.4)	—
Type of anticancer treatment		
No treatment yet	27 (11.4)	—
Radiotherapy only	86(36.3)	—
Chemotherapy only	11(4.6)	—
Surgery only	9(3.8)	—
Radiotherapy and chemotherapy	57(24.5)	—
Radiotherapy and surgery	9(3-8)	—
Chemotherapy and surgery	4(1.7)	—
Radiotherapy and chemotherapy and surgery	32(13.9)	—
HrQoL		
PWB		
Favourable	78 (33.3)	—
Fairly favourable	104 (43.8)	—
Unfavourable	55 (24.)	—
SFWB		
Favourable	114 (48.5)	—
Fairly favourable	93 (39.1)	—
Unfavourable	30 (12.3)	—
EWB		
Favourable	144 (61.5)	—
Fairly favourable	69 (39.8)	—
Unfavourable	22 (9.5)	—
FWB		
Favourable	87 (36.8)	—
Fairly favourable	94 (39.8)	—
Unfavourable	56 (23.4)	—
Total FACT-G		
Favourable	77 (32.8)	—
Fairly favourable	136 (57.4)	—
Unfavourable	24 (9.8)	—

of 15 to 95 years with a mean age of 49.91 (13.48) years. Of the 237 participants, 198 (84.1%) were women, 169 (72.1%) were married, 105 (44.4%) were from the Igbo tribe and 110 (46.4%) had breast cancer; 86 (36.3%) received radiotherapy only as their anticancer treatment. Of the 237 participants, 144 (61.5%) reported

favourable EWB. However, in all other domains of HrQoL (PWB, SFWB, FWB), greater than half had less than favourable scores.

### Coping strategies

The five most commonly used coping strategies among the participants were religion (85.0%), instrumental support (73.2%), acceptance (70.0%), emotional support (68.9%) and active coping (63.4%) (See: Table 2). The least used were substance abuse (7.5%), self-blame (13.2%) and behavioural disengagement (22.7%).

### Correlation between coping strategies and HrQoL

Correlations between coping strategies and HrQoL domains are in Table 2. There is a significant inverse correlation between PWB and behavioural disengagement, venting, planning and self-blame with PWB ( $p < 0.05$ ). SFWB has significant linear correlation with active coping, emotional support, positive reframing, instrumental support, acceptance and religion ( $p < 0.05$ ). EWB has significant inverse correlation with behavioural disengagement and self-blame ( $p < 0.05$ ). FWB has significant linear correlation with active coping, instrumental support and acceptance ( $p < 0.05$ ). Finally, FACT-G has significant linear correlation with emotional support, instrumental support and acceptance but significant inverse correlation with behavioural disengagement ( $p < 0.05$ ).

### Difference in participants' HrQoL based on type of anticancer treatment

Table 3 displays the means of the domains of HrQoL by type of anticancer treatment. Participants receiving chemotherapy alone reported lower mean FWB (9.10), SFWB (17.18) and overall HrQoL (51.18) scores than participants using all the other types of treatment combinations. The HrQoL of participants receiving chemotherapy alone is even lower than those of participants who are yet to start treatment (16.59, 17.81 and 68.04, respectively).

Table 4 shows that the type of treatment significantly influenced the participants' SFWB ( $p < 0.05$ ), FWB and the overall FACT-G score ( $p < 0.01$ ). It however did not influence the PWB and the EWB domains ( $p > 0.05$ ).

### Discussion

The overall goal of this study was to explore whether there was an association between the PWB, the SFWB, the EWB and the FWB domains of HrQoL and the coping strategies of patients in treatment for cancer at the University College Hospital, Ibadan, (Radiotherapy/cancer care clinic) in West Africa. To accomplish this goal, we interviewed 237 patients in treatment for cancer using a demographic and clinical questionnaire, the Brief COPE

**Table 2.** Correlation of HrQoL dimensions (FACT-G subscales) with coping strategies (*n* = 237)

Coping strategies	Not at all/a little bit	Somewhat to very much	PWB	SFWB	EWB	FWB	Total FACT-G
Active coping	88 (36.6%)	149 (63.4%)	-0.026	0.147*	-0.010	0.144*	0.111
Denial	153 (65.3%)	84 (34.7%)	-0.051	-0.056	-0.068	0.056	-0.045
Substance use	216 (92.5%)	21 (7.5%)	-0.114	0.050	-0.076	-0.052	-0.055
Emotional support	76 (31.1%)	161 (68.9%)	0.016	0.402**	0.055	0.111	0.190**
Behavioural disengagement	179 (77.3%)	59 (22.7%)	-0.223**	-0.045	-0.232**	-0.109	-0.184**
Positive reframing	123 (52.3%)	114 (47.4%)	-0.055	0.174*	0.032	0.125	0.107
Self-distraction	128 (54.0)	109 (46.0%)	-0.100	0.116	-0.018	0.123	0.031
Venting	105 (43.9%)	132 (56.1%)	-0.141*	0.059	-0.130	0.013	-0.084
Instrumental support	67 (26.8%)	170 (73.2%)	0.001	0.372**	0.120	0.169**	0.241**
Acceptance	75 (30.0%)	162 (70.0%)	-0.007	0.343**	0.065	0.257**	0.213**
Planning	114 (47.4%)	123 (52.3%)	-0.190**	0.035	-0.110	-0.029	-0.117
Self-blame	200 (86.8%)	37 (13.2%)	0.144**	-0.001	0.226**	-0.021	-0.109
Religion	39 (15.0%)	198 (85.0%)	-0.096	0.199**	0.047	0.118	0.098
Humour	162 (69.7%)	75 (30.3%)	0.056	0.088	0.129	0.090	0.131

\*Correlation is significant at 0.05 level (two-tailed).

\*\*Correlation is significant at 0.01 level (two-tailed).

and the FACT-G, and analysed their responses to answer four specific aims. First, we described participants HrQoL. Although nearly 62% of participants reported favourable EWB, well over half of all participants reported either fairly favourable or unfavourable PWB, SFWB, FWB and overall HrQoL.

Second, we identified the coping strategies participants used. The problem-focused coping strategies most frequently used among the participants in this study were religion, instrumental support, acceptance, emotional support and active coping. These findings imply that most of the participants positively appraised their stressful and threatening disease and attempted to develop effective coping strategies to maintain their psychosocial well-being. Coping theorists often emphasise the benefits of problem-focused coping, such as acceptance, positive reframing and turning to religion or spirituality [4,6]. A considerable number of studies with various patient groups show that an increase in the functioning of spiritual or religious coping in patients with chronic conditions stimulates psychological functions, adaptation to the illness process, life satisfaction and quality of life (QoL) [7–9]. In a study

with various chronic illnesses [9], the relationship between spirituality and coping was analysed. A positive correlation was identified between the increase in the interpersonal and the transcendental connectedness of the patients and their psychological well-being and functions.

Third, we asked whether there were correlations between coping strategies used by participants and the four domains of HrQoL. There is a significant inverse relationship between PWB with behavioural disengagement, venting, planning and self-blame.

Emotional well-being has significant inverse relationship with behavioural disengagement and self-blame. This implies that as the use of these coping mechanisms increase, the related HrQoL domains deteriorates. This finding coheres with that of other studies, in which findings indicate significant positive correlations between venting or self-distraction of one's emotions with adverse outcomes, such as distress and physical health symptoms [10–12].

The differences in the findings of this study and those of previous studies regarding the effect of venting as a coping strategy on one's level of anxiety may be indicative of cultural differences in how patients from various

**Table 3.** Mean scores of HrQoL domains and HrQoL total by anticancer treatment type

Anticancer treatment type	PWB	SFWB	EWB	FWB	Total FACT-G
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
No treatment yet	16.7(6.4)	17.8(6.8)	16.8(5.8)	16.5(6.8)	68.0(17.6)
Radiotherapy only	16.3(7.5)	18.6(7.4)	17.0(6.0)	17.1(7.9)	68.3(21.4)
Chemotherapy only	11.6(6.1)	17.1(5.9)	15.5(5.8)	9.1(6.7)	51.18(17.4)
Surgery only	16.2(6.9)	21.3(8.3)	17.2(4.5)	12.1(5.9)	66.3(14.8)
Radiotherapy and chemotherapy	15.6(8.3)	17.4(6.7)	16.4(5.9)	16.0(7.9)	64.6(22.2)
Radiotherapy and surgery	19.6(8.5)	21.6(5.4)	20.4(2.5)	22.7(4.2)	84.5(10.8)
Chemotherapy and surgery	16(6.9)	22.5(6.5)	19.5(3.1)	18.7(7.8)	76.5(18.0)
Radiotherapy and chemotherapy and surgery	18.5(7.6)	22.0(5.0)	18.0(5.1)	20.6(7.8)	78.2(17.4)

**Table 4.** ANOVA of influence of different treatment types on patients' quality of life

	Sum of squares	Df	Mean square	F	Sig.
Physical well-being					
Between groups	541.332	7	77.333	1.345	0.230
Within groups	13,054.864	227	57.510	—	—
Total	13,596.196	234	—	—	—
Social/family well-being					
Between groups	686.871	7	98.124	2.120	0.042
Within groups	10,504.295	227	46.274	—	—
Total	11,191.166	234	—	—	—
Emotional well-being					
Between groups	208.587	7	29.798	0.926	0.487
Within groups	7179.110	223	32.193	—	—
Total	7387.697	230	—	—	—
Functional well-being					
Between groups	1645.024	7	235.003	4.153	0.000
Within groups	12,618.976	223	56.587	—	—
Total	14,264.000	230	—	—	—
FACT-G					
Between groups	9852.761	7	1407.537	3.512	0.001
Within groups	90,982.533	227	400.804	—	—
Total	100,835.294	234	—	—	—

cultures distract or vent their illness related distress. The participants in those studies probably indicated that venting was an effective way to promote psychosocial well-being and when someone said puzzling or distressful things, they 'let the unpleasant feelings escape' and felt relieved or comfortable. The advantage of venting was not only a means to release unpleasant feelings, but also a means to have an effective response from others. This finding suggests that health professionals should patiently listen to patients with cancer and provide opportunities for expression of negative feelings and complaints. But venting could also involve expending more energy physically and psychologically, stirring up negative emotions in the patients that may account for its negative relationship with PWB and EWB domains in this study. Self-blame also demonstrated negative relationship with physical and emotional well-being domains. It is not uncommon for patients with cancer to blame themselves too much for bringing the illness upon themselves due to previous lifestyles or for not achieving the demands of their treatment regimen. Self-blame could affect the patient in two opposite ways. On the one hand, it may stimulate active coping, but on the other hand, it may lead to guilt and even depression [13]. In another study [14], planning is associated with more positive health outcomes but is here related to a poorer HrQoL. A possible explanation could be the frustration that comes from planning all one can but still the disease progresses and throws off these plans.

Social/family well-being has significant linear relationship with active coping, emotional support, positive reframing, instrumental support, acceptance and religion.

Functional well-being has a positive relationship with active coping, instrumental support and acceptance. This

implies that the coping strategies positively enhance the HrQoL domains of the patients they relate to. Religion, the most commonly used coping mechanism in this study, could have been positively associated with SFWB because religious approaches have effectively 'convinced' patients to slowly but eventually accept their condition, hence encouraging them to plan and reframe the problem to become more positive-minded. Like many other studies of such nature, religious belief was the major coping strategy used to confront most particular chronic diseases [15–18]. These strategies seemed to help patients reform their views on the illness, and consequently, facilitate them to overcome its related problems. Some may even consider the disease as their 'destiny' and 'God's test', therefore surrendering themselves to their fate [19] through acceptance. Similar to a previous study, the participants were seeking emotional and instrumental supports, which emphasise the role of families' emotional and instrumental backings in helping patients to adapt to their health situation [17].

Although the overall HrQoL, as measured by the total FACT-G score, has a significant linear relationship with emotional support, instrumental support and acceptance, it has significant inverse relationship with behavioural disengagement. Most patients having chronic health conditions with poor HrQoL frequently reported diminished socialisation, negative self-image, feeling of stigmatisation, reduced earning potential and diminished hope and ambition [20,21]. Because of all such negative attributes, many failed to accept the situation and encountered adjustment problems, probably due to feelings of helplessness; some may decide to disengage behaviourally to reduce the amount of effort required to deal with the challenges of their illness and may even give up efforts to accomplish objectives the onset

disease and treatment requirements are interfering with [22]. Denial that is often linked with disengagement may not eliminate negative mood states but may help patients distance themselves from negative thoughts and feelings [23].

Supported by a previous study, problem-focused approach coping strategy has been shown to be more functional, whereas the emotion-focused or avoidant coping method was rather dysfunctional and could lead to withdrawal, fatalistic attitudes and avoidance of problems [24]. These coping methods were directed at efforts to solve or manage problems in more practical ways, including strategies for gathering information, making decisions, planning and resolving conflict [14]. It has also been suggested that long-term, enduring stressors such as cancer require problem-focused strategies because continuous use of avoidant tactics would only prevent change and consume substantial effort, which over time, could deplete the individual's psychological and physical resources [25].

Fourth, we asked whether there was any difference in participants' HrQoL based on type of anticancer treatment, and found that participants receiving chemotherapy alone reported lower SFWB, FWB and overall HrQoL scores; these lower scores were borne out by the ANOVA, with type of anticancer treatment significantly varying the SFWB, the FWB and the overall HrQoL scores ( $p < 0.05$ ). This finding coheres with the findings of a study by Zhongguo [26], in which he reported that before chemotherapy, the scores of functioning scales were high, but during the chemotherapy, the patients have significant depression and the QoL decreased with increasing cycle of chemotherapy. In a study comparing QoL between patients undergoing chemotherapy and those patients who had not started their chemotherapy, it was reported that cancer and chemotherapy reduce QoL but concluded that it is the diagnosis rather than the treatment that is responsible for lowering QoL, as there were no statistically significant differences between the groups [27]. Other studies have reported that chemotherapy increases the QoL of cancer patients. For instance, Heydarnejad, Hassanpour and Solati [28], in their study, assessing factors affecting QoL in cancer patients undergoing chemotherapy, found that the majority of the patients (68%) who had completed three or more cycles of chemotherapy reported a fairly favourable or favourable level of HrQoL. This may show that HrQoL is directly related to an anticancer treatment procedure. Their result is consistent with other studies. For instance, Chen *et al.* [29] found that QoL in lung cancer patients during the

fourth cycle of chemotherapy improved slightly over the baseline values; the patients perceived more sleep disturbances during the early cycles of chemotherapy. Similar results have been found in patients suffering from advanced cancer [30] and from breast cancer [31].

## Implications

The relationships between different coping mechanisms and HrQoL domains have counselling and clinical implications. The findings in this study have underscored the importance of taking individual coping strategies into account when evaluating the impact of cancer or other chronic diseases on psychosocial well-being. Delineation of coping strategies might be useful for identifying patients in need of particular counselling and support. Through psychosocial interventions, professionals need to assist patients in establishing positive self-evaluations that would enhance their choice of more positive culture specific coping strategies.

## Limitations

Limitations in this study include the relatively small sample size because of the use of only one treatment centre. It was a cross-sectional study, so we cannot show correlations over time. These limitations notwithstanding, this was a strong study. It was probably the first to describe the relationship between coping strategies and HrQoL among patients in treatment for cancer in West Africa, and the results highlight the importance of assessing for patients' coping strategies in psychosocial evaluation.

## Conclusion

Several coping strategies were shown to have significant relationships with the different HrQoL domains whereby patients generally possessed the tendencies to cope via problem-focused styles rather than the emotion-focused ones. Enhanced awareness and a clearer perception of the ways to help patients with cancer to cope more effectively with their problems through psycho-oncological care will benefit patients in the pursuit of improved health outcomes. Longitudinal research is needed to examine psychosocial factors that enhance HrQoL and facilitate useful and culture specific coping strategies among patients with cancer.

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